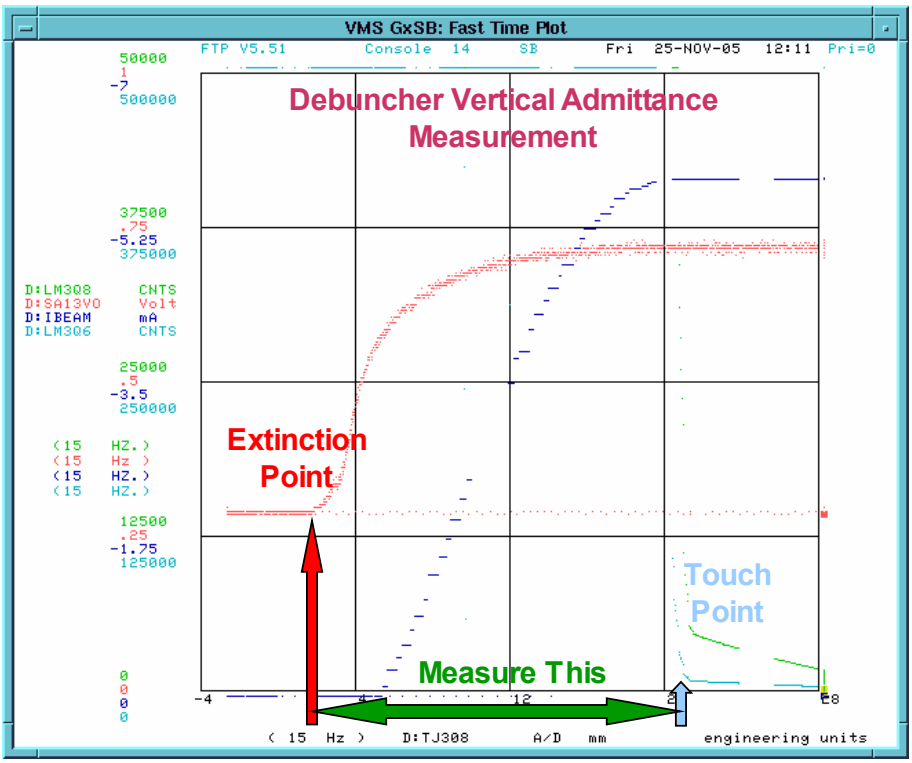
2005-12-02-Debuncher Admittance Measurement

Friday, December 02, 2005
7:27 AM

11-25-05:

- Establish circulating reverse protons to the Debuncher.
  - Don't forget to take the $35 out of A:SCRES. If not, beam will be kicked out of the Debuncher on the next $21 SY120 event.
- From the Pbar Sequencer P64
  - Inject beam and complete a vertical aperture scan
    - Start Pbar FTP #57
      - Red trace is the output of the spectrum analyzer connected to the Debuncher longitudinal Schottky. We use this device to determine the beam extinction point.
      - The Cyan and Green traces are loss monitors. We use these parameters to determine the touch point.
      - The blue trace is Debuncher beam.
    - The FTP has been experiencing problems dropping data. For this reason, we put the plot devices into a 15Hz datalogger. The plot can be retrieved from D44 -> User -> gollwitz -> DebVertAdm. After the scan is complete, do a "T2 = Now" and "Interval = 5 minutes."
    - Run the "Deb Vert aperture scan rev p" aggregate
      - Last 5 commands setup the DEX Bumps
      - Then run from the top
      - Adjust the scraper position to the right side of the plot by hand (~100 Steps = 1 mm) prior to heating the beam



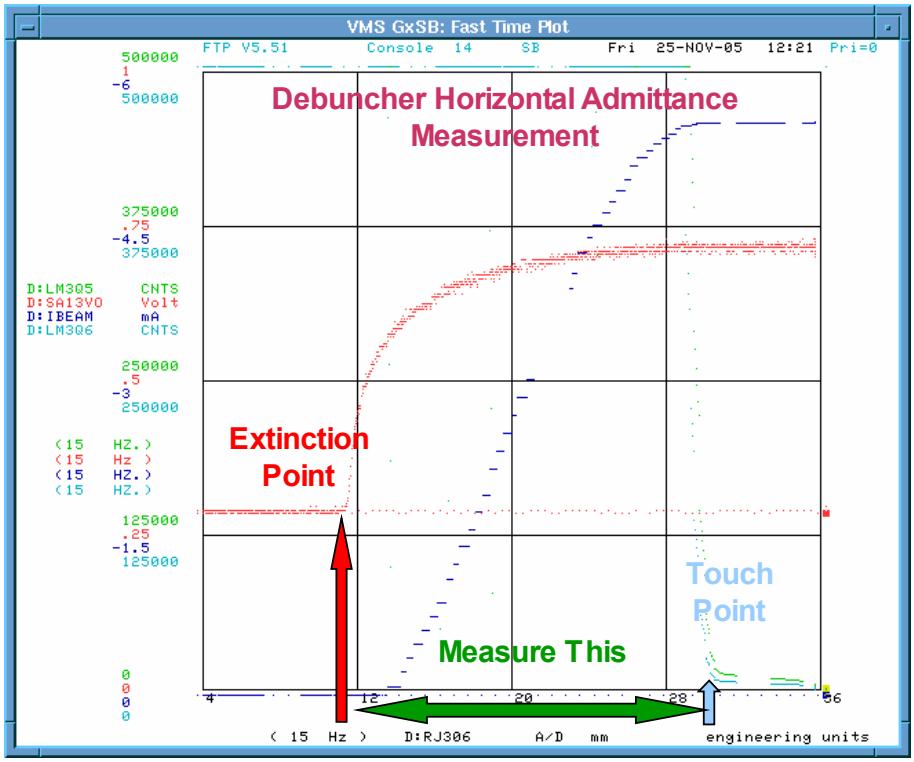
      - Print out the scan results and measure the distance between the touch point and the extinction point in mm.
      - The equation for calculating the vertical admittance is:
        A_v = (Measured (mm) * Scale (mm)/Plot Length (mm))^2/β_v
        - Given
          - Scale = 32mm
          - Plot Length = 153mm

- ◇ β_v = 13m

$A_v = (\text{Measurement(mm)} * 32/153)^2/13$

- □ Typical values run around 23 π-mm-mrad.

- Inject beam and complete a horizontal aperture scan
  - Start Pbar FTP #56
    - □ Red trace is the output of the spectrum analyzer connected to the Debuncher longitudinal Schottky. We use this device to determine the beam extinction point.
    - □ The Cyan and Green traces are loss monitors. We use these parameters to determine the touch point.
    - □ The blue trace is Debuncher beam.
  - The FTP has been experiencing problems dropping data. For this reason, we put the plot devices into a 15Hz datalogger. The plot can be retrieved from D44 -> User -> gollwitz ->DebHorAdmit. After the scan is complete, do a "T2 = Now" and "Interval = 5 minutes."
  - Run the "Deb Hor aperture scan rev p" aggregate
    - □ Last 5 commands setup the DEX Bumps
    - □ Then run from the top
    - □ adjust the scraper position to the right side of the plot by hand (~100 Steps = 1 mm) prior to heating the beam



- □ Print out the scan results and measure the distance between the touch point and the extinction point in mm.
- □ The equation for calculating the vertical admittance is:
  A_h = (Measured (mm) * Scale (mm)/Plot Length (mm))$^2/\beta_h$
  - ♦ Given
    - ◇ Scale = 32mm
    - ◇ Plot Length = 153mm
    - ◇ β_h = 11.7m

$A_h = (\text{Measurement(mm)} * 32/153)^2/13$

- □ Typical values run around 30 π-mm-mrad.